Regulatory and Policy Implications of Advanced Wireless Technologies to Spectrum Management

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Panelists

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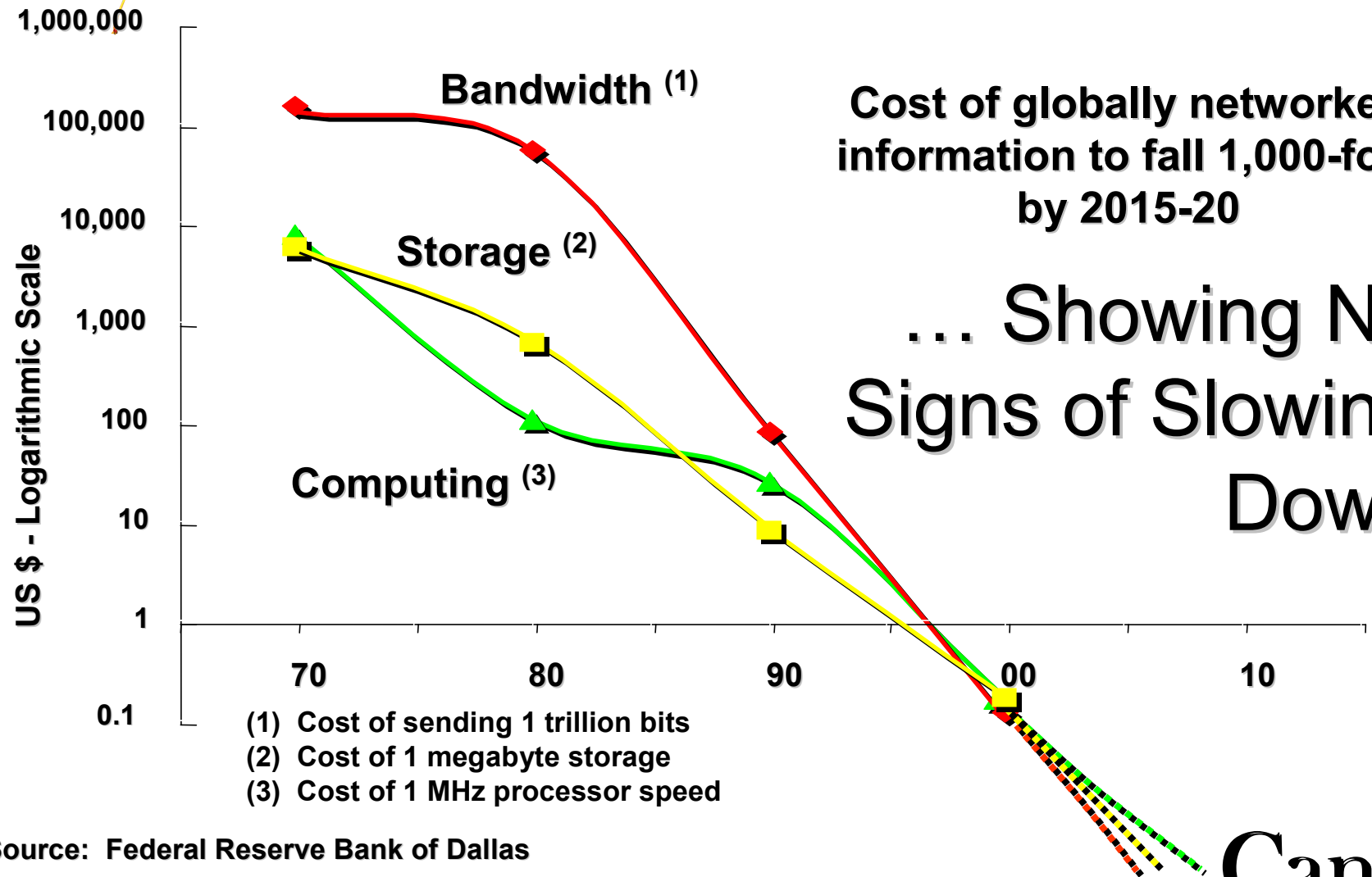
We are in the network age

"Today's technological transformations are intertwined with another transformation – globalization - and together they are creating a new paradigm: the network age."

United Nations Human Development Report, July 2001

- Instant access to knowledge
- Transforming business
- Borderless, global economies
- New ways of citizen – government engagement

Technology continues to evolve



Cost of globally networked information to fall 1,000-fold by 2015-20

… Showing No Signs of Slowing Down

Source: Federal Reserve Bank of Dallas

Demands for new wireless services

- IMT-2000 and systems beyond
- Wireless LANS (WiFi)
- Public Safety (narrowband, wideband)
- Satellite radio
- DTV
- Broadband wireless systems
- Radio frequency ID (RFID)
- **Etc.**

Regulatory and policy challenges

- Technology is blurring traditional service lines
- Large demand for spectrum access in bands below 3 GHz
- Spectrum monitoring exercises indicate considerable spectrum availability (time, geography)
- Consumer demand for wide range of plug-and-play wireless products
- Rapidly expanding RF broadband networks
  - Ubiquity
  - Increased bandwidth
- Demands for flexible use of spectrum
- Pressure to harmonize spectrum use for economy of scale

Regulatory and policy challenges

- Incumbent rights/transition challenges
- Demands for regulatory recognition
- Rural vs. Urban use of spectrum
- New approaches for border arrangements
- What is the appropriate interference model?
  - Deterministic (I/N, C/I)
  - Probabilistic
  - Other
- Noise floor rights?

New spectrum access enabling technologies

- Software Defined Radio (SDR)
- Cognitive
  - 5 GHz RLANS
- Ultra-wideband (UWB)
- Interference Ignoring Systems
- Merger of computing and communications
  - WiFi
  - Mesh networks
- Smart antennas
- Scalable modulation/power schemes

The road ahead

- How can spectrum managers harness the benefits of new spectrum access technologies in their regulations and policies?
- Over to our panelists….